

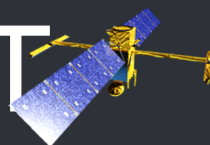


podaac

Physical Oceanography Distributed Active Archive Center



PO.DAAC SWOT Hydrology Data Access



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Contact: michael.e.gangl@jpl.nasa.gov

June 19th, 2019
SWOT Science Team Meeting 2019
Bordeaux, France

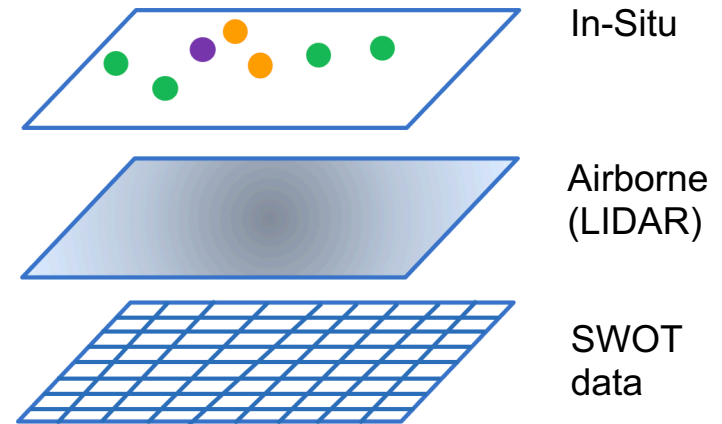
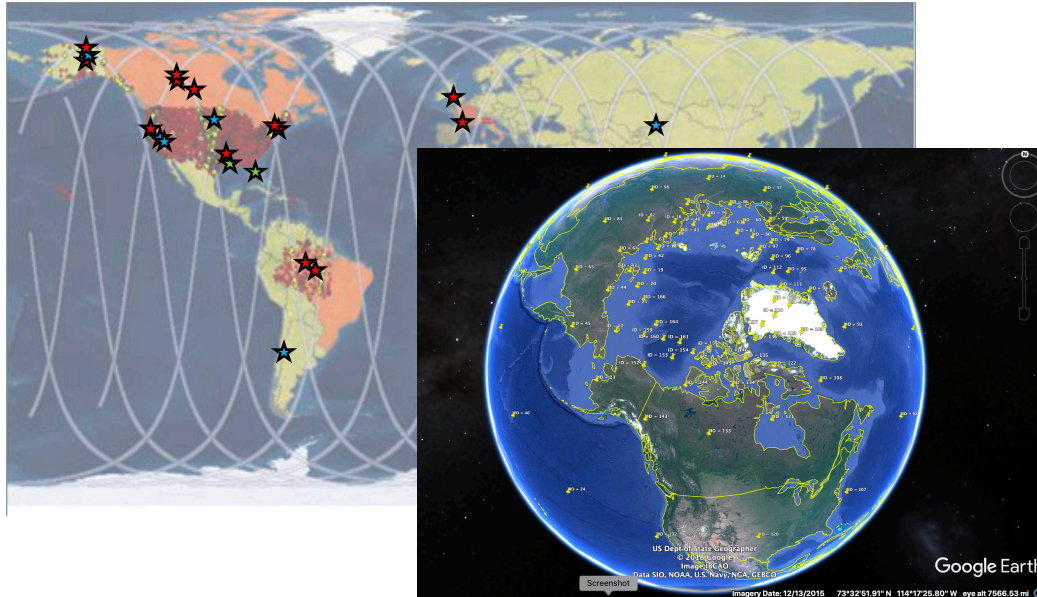
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Caltech

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Hydrology Cal/Val Support

Tier -1 Sites



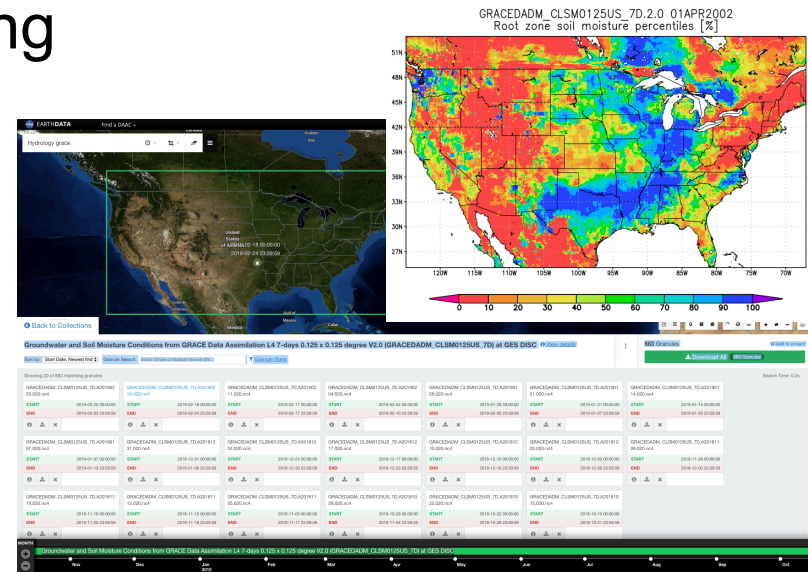
Provide subsetting capabilities across the Cal/Val Insitu and Cross over sites

- ✓ Archive and distribution of Cal/Val datasets
- ✓ Data Engineering support for effective integration of Cal/Val data in support of SWOT
- ✓ SWOT Cal/Val datasets (funded by NASA PO program) will be made searchable and available at PO.DAAC
- ✓ Support data access across Hydrology and Ocean Cal/Val Sites (Example Hydrology: Tier 1 Gold Standard and Tier 2 Sites; Ocean: California Site)
- ✓ Simplified Cal/Val dataset submission into PO.DAAC
- ✓ Access to pre-SWOT datasets

Tools – Existing Search and Subsetting

Earthdata Search

- PO.DAAC And EOSDIS Holdings
 - SWOT will use similar mechanism
- GUI and Programmatic Access
<https://search.earthdata.nasa.gov>



Resources

YouTube Tutorials

<https://bit.ly/2WmyNso>

Datasets

MEaSUREs Integrated Multi-Mission Ocean Altimeter Data for Climate Research

- Swath Sea Surface Height Anomaly
- Gridded Sea Surface Height Anomaly

MEaSUREs Pre-SWOT Hydrology Virtual river station heights

- Lake/reservoir surface water area extent
- Lake/reservoir water height

GRACE and GRACE-FO

Upcoming

Jason-CS/Sentinel-6 – November 2020
Simulated data from the SWOT project

PO.DAAC Drive

Current Location: /alData

Access PO.DAAC Drive API Credentials

Name	Last Modified	Size
alData	2019-05-31 17:32:10	-
common	2019-04-16 10:26:32	-
GeospatialGrav	2017-06-15 13:37:55	-
misc	2019-04-16 10:26:32	-
OceanCirculation	2017-06-15 13:39:05	-
OceanTemperature	2017-06-15 20:37:30	-
OceanWinds	2017-06-19 22:01:57	-
SalinityDensity	2017-06-15 13:46:53	-
Sealce	2017-06-15 13:47:53	-
SeaSurfaceTopography	2017-06-15 13:50:51	-
REACME	2016-10-25 19:44:59	1.1 KB
REACME.txt	2016-10-25 19:45:04	866 Bytes

<https://podaac-tools.jpl.nasa.gov/drive>

PO.DAAC Drive

- No FTP available
- HTTPS Based product browsing
- Download files to your computer
- GUI and API access

OPeNDAP Server Dataset Access Form

Action: ☐ Get ASCII ☐ Get as NetCDF 3 ☐ Get as NetCDF 4 ☐ Binary (DAP2) Object ☐ Show Help

Data URL: https://opendap.jpl.nasa.gov/443/opendap/SeaSurfaceTopography/coastal_ar1/L2

Global Attributes: NC_GLOBAL.Conventions: CF-1.1
NC_GLOBAL.Line: GDS - Expertise dataset
NC_GLOBAL.Institution: NOD
NC_GLOBAL.Source: radar altimeter
NC_GLOBAL.history: 2012-04-24 15:40:37 : Creation (in addition of ALES)

Variables: ☐ time: Array of 64 bit Reals [time = 0.3011]
time:
long_name: time (sec. since 2000-01-01)
interval_name: time
calendar: gregorian
is_auxiliary: 33.000000000000000
units: seconds
comment: 0000-00-00 00:00:00

☐ meas_ind: Array of 16 bit Integers [meas_ind = 0.19]
meas_ind:
long_name: elementary measurement index
units: count
comment: Set to be compliant with the CF-1.1 convention

☐ wvf_ind: Array of 16 bit Integers [wvf_ind = 0.103]
wvf_ind:
long_name: waveform index
units: count
comment: Set to be compliant with the CF-1.1 convention

HYRAX
DATA SERVER
a UNIVERSE of data at your fingertips!

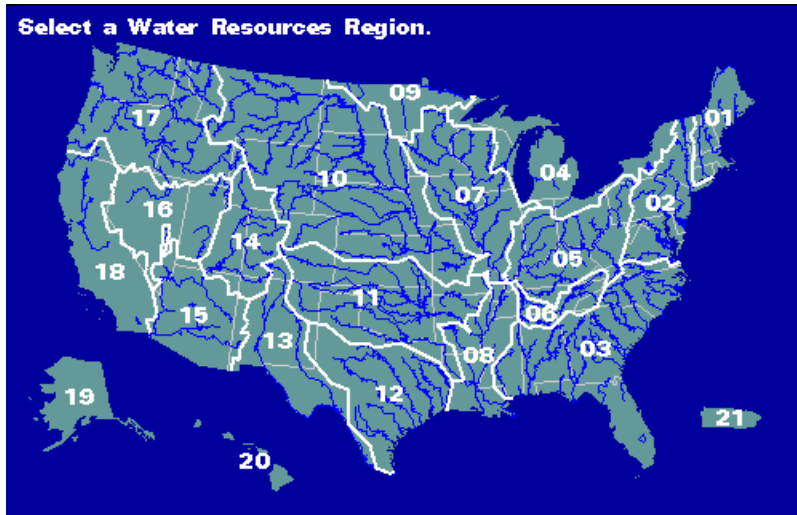
OPeNDAP

Time, Space, and Variable subsetting

- “GUI” and Programmatic access
<https://opendap.jpl.nasa.gov/opendap/>

Tools Preview – Search and Discovery Webservices

Regional Search – HUC and SWOT Feature IDs



Subscribe to any search parameters available:

- Feature ID or HUC
- Points, Lines, & Geometries
- User supplied shapefiles

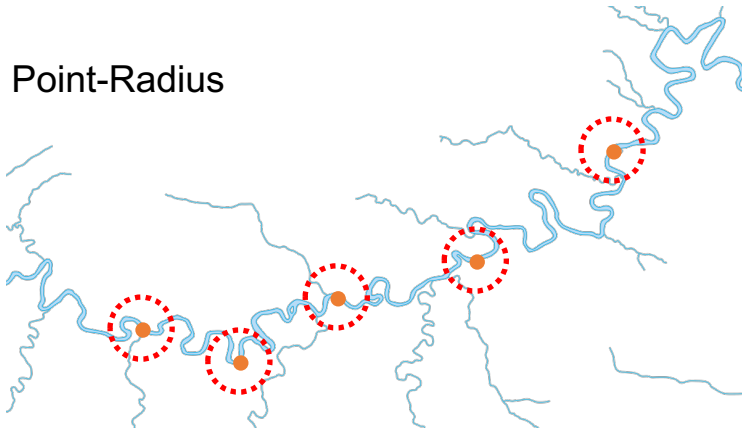
SUBSCRIBE



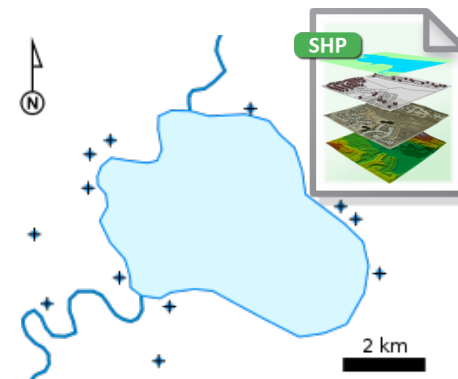
Digest or per-granule (search hit) notifications

Combine with transformations

Point-Radius



Custom Shapefile Search

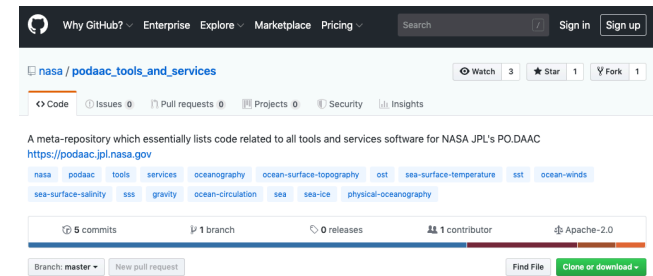
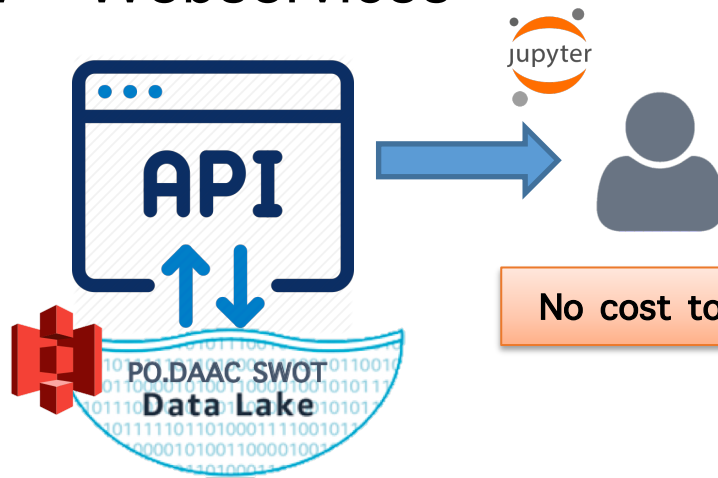


Tools Preview – Webservices

Scripted Access

PO.DAAC

Webservices 2.0



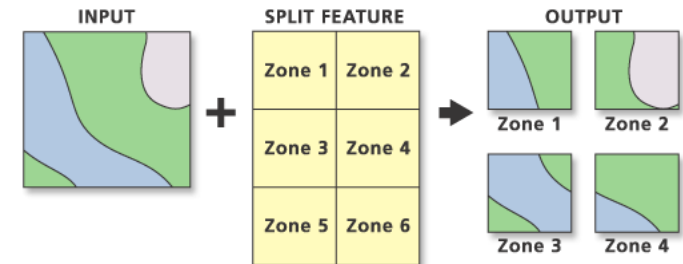
Github and Github forum for community adoption

Data

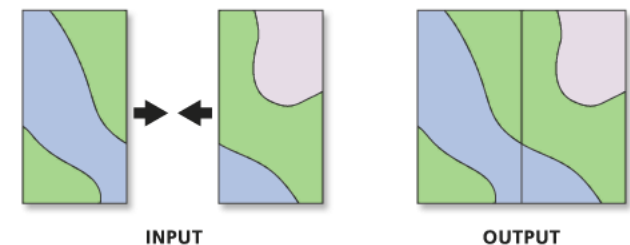
Transformation



Split Hydrologic Features

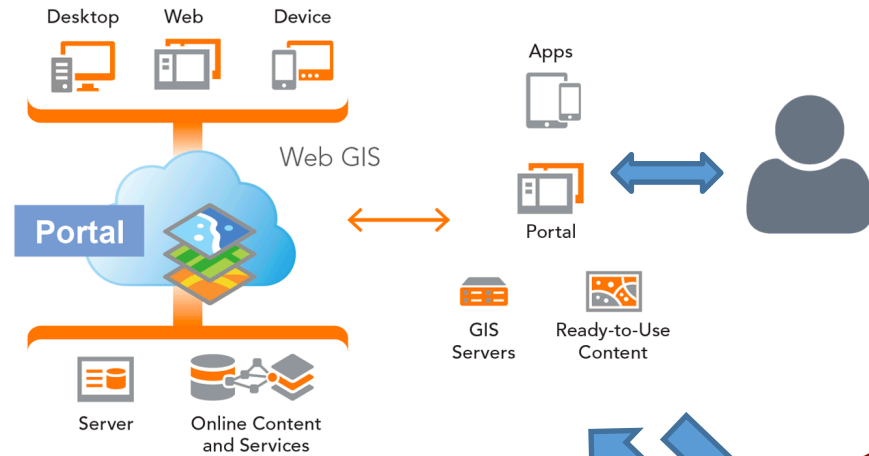


Merge Hydrologic Features (Space and Time)

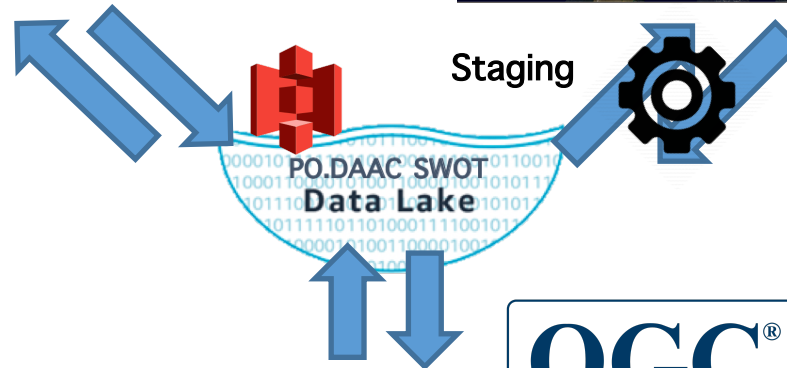
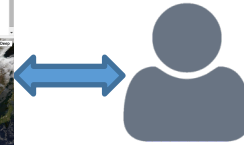
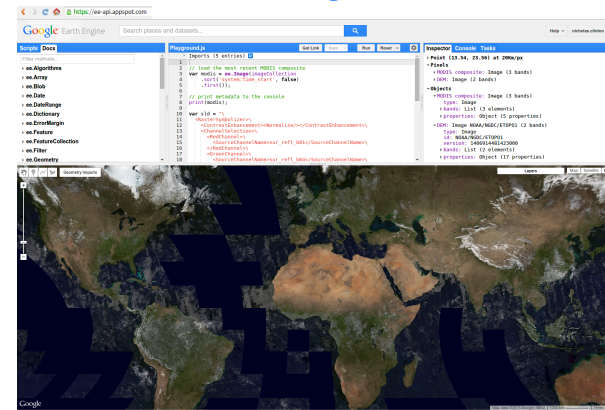


Tools Preview – End User Analytics Tools

ArcGIS Portal



Google Earth Engine

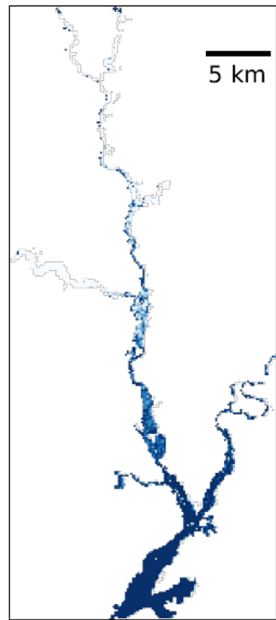


No cost to end-user

No cost to end-user

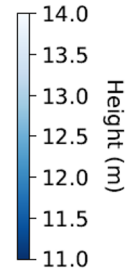
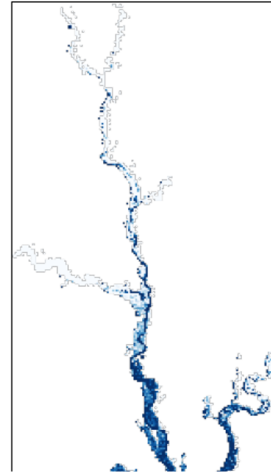
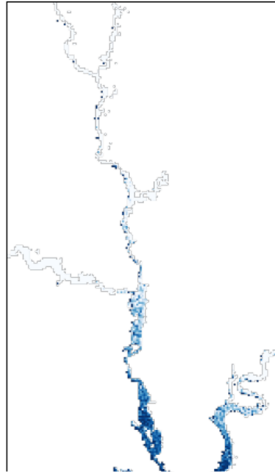
No cost to end-user

Tools Preview – On Demand Raster



Pass 0295 Day 29

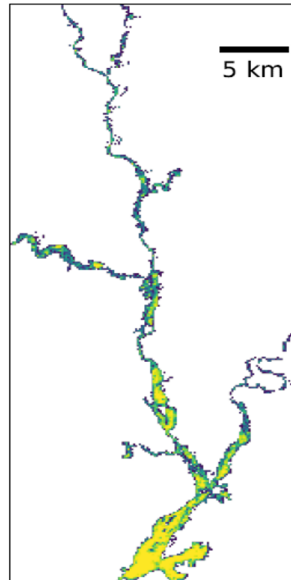
Water surface height



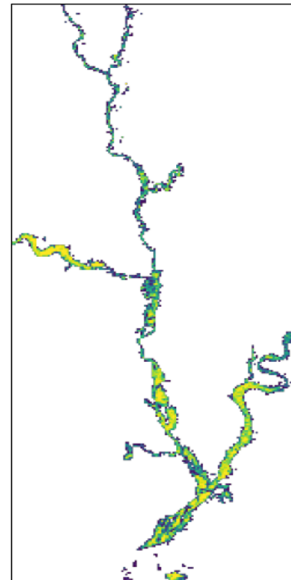
On-demand production:

- Not archived.
- Limited coverage (<< global).
- User-specified coverage
- User-specified resolution

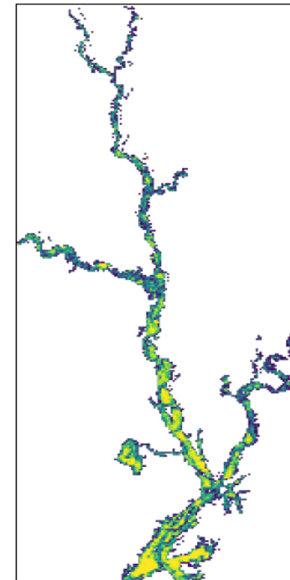
Percentage of inundated area



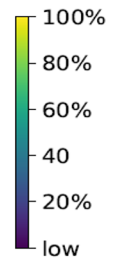
Pass 0295 Day 29



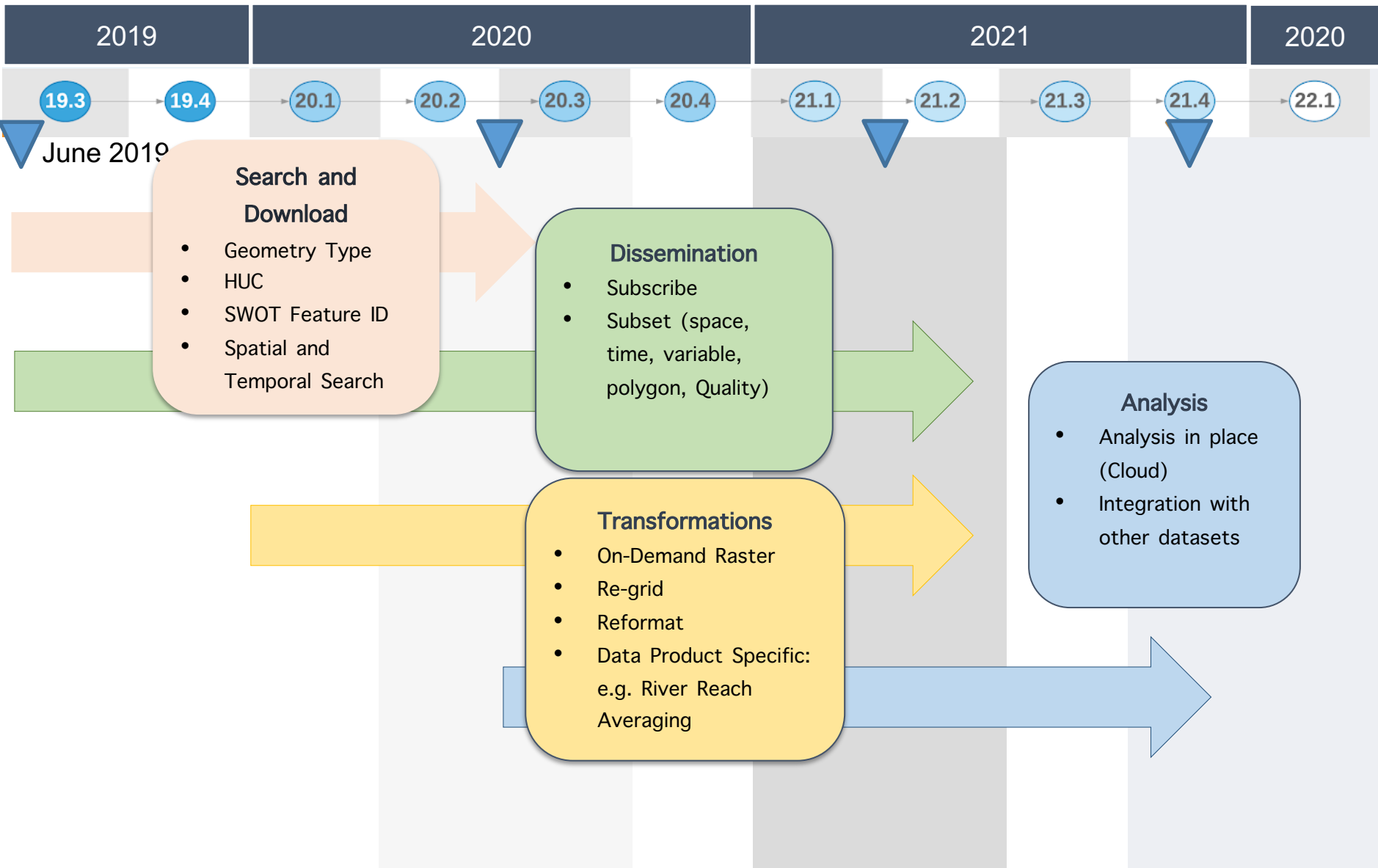
Pass 0295 Day 50



Pass 0295 Day 71



PO.DAAC SWOT Capability Timeline



Data Lake Inundation Timeline

